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Notes on Michigan Liliaceae*

OLIVER ATKINS FARWELL

(WITH PLATE 20)

NEW VARIETIES OF *ALLIUM CANADENSE*

In Michigan there are three well-defined races or varieties of the common wild garlic, *Allium canadense* L. The type, with narrow leaves and numerous, small, ovoid, whitish, obtuse or acutish bulblets in the simple umbel; a form with noticeably broader leaves but with fewer, larger, long-acuminate bulblets which are red at maturity; and a larger, glaucous, form with more fleshy leaves, often with two or three sessile, contiguous umbels, which bear a larger number of obovoid or nearly spherical bulblets of a yellowish white color. There is such a marked difference in the appearance of these forms, at least in the living state, that it seems advisable to name them and place them on record.

***Allium canadense ovoideum* var. nov.**

Bulb ovoid, about 19 mm. long, outer coats fibrous-reticulated, 5–8 cm. below the surface; plant 3–4 dm. high, green, with four or five leaves near the base, these equalling the scape or a little shorter; umbel terminal, mostly of a few, twelve or less, large, ovoid-acuminate, sessile bulblets with or without a few long-pedicelled flowers and some secondary umbels of one to three bulblets, on long rays 5–10 cm. long; involucre of one to three ovate, acuminate, scarious bracts, 2.5–4 cm. long; bulblets of the umbel gradually tapering from a broad base, the larger about 22 mm. in length, mostly rose colored at maturity; generally there are no flowers but some umbels may have from one to four, and occasionally there may be one in one of the umbellets; the flowers are pale purple, on pedicels 5 cm. in length, 8 mm. across when open, 5–6 mm. high; segments acute, the outer narrowly ovate, the inner oblong or linear.

On wet banks in open fields. MICHIGAN: near Rochester, June 11, 1914, *Farwell* 3667.

* Contributions to the Botany of Michigan, No. 12.

Differs from the typical form of the species in its large long-acuminate, rose-colored bulblets, in the narrower perianth-segments and longer pedicels.

***Allium canadense robustum* var. nov.**

Bulb spherical or nearly so, 2.5 cm. in diameter or less, the outer coats fibrous-reticulated, deep-seated, 15–18 cm. below the surface; scapes, often two, 3–4.5 dm. in height, 6 mm. or less in diameter, and, with the two to six leaves near the base, glaucous; leaves rather fleshy, 6 mm. wide, channelled above, convex below, two thirds to three fourths the length of the scape; scape bearing one to three sessile, contiguous umbels, mostly of bulblets, at its apex with one or more rays, 12.5 cm. or less in length, each bearing an umbellet of from one to three bulblets; bulblets often foliaceous, from spherical or nearly so to obovoid, tipped with a minute curved point, the larger about 12 mm. in longest diameter, very numerous, often more than thirty, yellowish white; involucre one to four ovate, acuminate scarious bracts, the acumination often prolonged to a length of 7.5 cm.; flowers, when present, few, on pedicels 19–38 mm. long, white or pale rose, 7 mm. high, 10 mm. across when open, segments obtuse, the outer ovate, the inner oval or obovate.

In rather moist meadow lands. MICHIGAN: near Rochester, June 9, 1912, *Farwell* 2629; June 13, 1912, *Farwell* 2729; June 11, 1914, *Farwell* 3666.

Differs from the typical form of the species in its more robust habit, compound umbel with differently shaped bulblets, obtuse petals and general glaucousness. Listed as *Allium rubrum* Osterhaut? in Rpt. Michigan Acad. Sci. 15: 169. Nov. 1913.

NEW SPECIES OF LILIUM

I have long considered that the wild red lily of the middle west is specifically distinct from the yellow-flowered *Lilium canadense* L. of the Atlantic seaboard.

Our plant is much taller and coarser; the flowers generally are strongly revolute and red instead of yellow; if the two plants were specifically the same, it would be reasonable to expect to see a yellow-flowered individual at times in the middle west but such has never come under my observation during the twenty-five years I have been observing these plants. I had become so thoroughly

imbued with the idea that our red lily of the middle west was the true *Lilium canadense* that when I first saw the smaller, yellow-flowered lily east of the Appalachians, from the window of a slowly moving train, I was unable to recognize it as of that species, it appeared to be so radically different from my conception of what *Lilium canadense* should be. The red-flowered plant is unquestionably a distinct species.

***Lilium michiganense* sp. nov.**

Leaves remotely whorled, six to ten in a whorl, three- to seven-nerved and rough on the nerves beneath as well as on the margins, lanceolate (12 mm. wide by 9 cm. long) to ovate-lanceolate (19 mm. wide by 4.5 cm. long); flowers in a pyramidal cluster (two to four axial from the uppermost whorl and about four racemosely disposed on the terminal portion of the stem), the peduncles 10–12 cm. long, often bearing a foliaceous bract near the middle.

MICHIGAN: Wiard's Crossing, July 9, 1910, *Farwell 2162* $\frac{1}{2}$.

Similar to *L. canadense* in foliage and to *L. superbum* in its flowers, which are of a beautiful orange-red, copiously spotted inside with purplish brown or crimson spots. The upper leaves of this plant are often smooth on the veins beneath, a transition to *L. superbum*, which, though credited to Michigan, I have not yet detected here. The new species occurs in three well-defined forms, and I have taken the most highly developed form, although not the commonest, as the type.

***Lilium michiganense umbelliferum* var. nov.**

Differs in having the stem end abruptly at the uppermost node, the inflorescence being composed of an umbel only, of from two to five flowers, from the axils of the leaves of the uppermost node.

MICHIGAN: Wiard's Crossing, July 9, 1910, *Farwell 2162* $\frac{1}{3}$; Birmingham, September 7, 1903, *Farwell 1261c*; Belle Isle, July 16, 1892, *Farwell 1261*; Palmer Park, July 16, 1902, *Farwell 1261b*; Rochester, July 4, 1896, *Farwell 1261a*.

***Lilium michiganense uniflorum* var. nov.**

The simplest form, in which the stem is continued beyond the uppermost whorl of leaves and bears a single, nodding flower.

MICHIGAN: Wiard's Crossing, July 9, 1910, *Farwell 2162* $\frac{1}{4}$;

Rochester, July 14, 1912, *Farwell* 2848; Parkedale Farm, October 5, 1913, *Farwell* 3523; Rochester, July 14, 1913, *Farwell* 2848.

It is a misnomer to call *L. michiganense*, as is usually done here, "the wild yellow lily" as the flowers are never yellow; the buds are at first green, then yellow (some, however, never show any sign of yellow externally), and finally red; the flowers when opened are orange-red externally and on the blade internally, the midvein being orange-yellow, the claw pale yellow or whitish and copiously blotched with crimson spots which extend upward on the blade for one half to two thirds its length. I have included in this species certain forms in which the buds show no yellow color, and the flower has brownish purple instead of crimson spots with orange-red extending down the claw, but in which the leaves are characteristic. Further study may prove these forms to be distinct. The segments are recurved to below the middle, often spirally coiled, so that the apex is again ascending.

***Lilium peramoenum* sp. nov.**

Similar to *L. michiganense*, but the leaves are more numerous, eight to sixteen in a whorl, with a corresponding increase in the number of flowers in the inflorescence; the flowers are orange-red throughout, dotted with copious but smaller spots; the leaves are narrower, linear-lanceolate, 10 mm. wide by 9 cm. long to oblong-lanceolate 15 mm. wide by 7 cm. long.

MICHIGAN: Parkedale Farm, July 19, 1914, *Farwell* 3726. Elder thickets in rich muck lands. *L. michiganense* is found usually in poorer soil though it may be in dry fields and on banks or in wet swamps and meadows. Both species range from 1-2 m. in height.

NOTES ON UNIFOLIUM BIFOLIUM

In *Rhodora* for December, 1914, Mr. Fernald describes a pubescent form of *Maianthemum canadense* as a new variety (var. *interius*) and gives its range from Illinois north and northwestward into Canada. He had not seen this pubescent form east of Illinois or Wisconsin. The late Mr. G. H. Hicks collected it at Owosso, Michigan, in 1889, and I found it at Stoney Creek, Michigan, in 1913. Both stations are in the southeastern part of the state, about sixty miles apart.

A careful study of a series of specimens, ranging from Oregon to Hungary, allows of but one conclusion—that there is but a single species and that the plant recently described by Mr. Fernald as *Maianthemum canadense* var. *interius*, is, in reality, identical with the Linnean *Convallaria bifolia* and is, consequently, *Unifolium bifolium* (L.) Greene. The plant from the Black Hills, FIGS. 7, 8, it will be observed, corresponds with that from Denmark, FIG. 6; the collections of Mr. Hicks, FIGS. 9, 10, are nearly identical with those from Hungary and Bavaria, FIGS. 1, 2; and my own collection from Stoney Creek, FIG. 11, is very close to another plant, FIG. 3, from Bavaria; the outlines of the leaves of the var. *canadense*, FIGS. 12–19, are the same as those of the type, no other difference, save that of pubescence, being detectable; the apex in both is acute or obtuse, the base cordate or sagittate; the western variety *kamtschaticum*, FIGS. 22, 23, shows the broadest sinus; the European type, the deepest; the var. *canadense*, the shallowest; and the var. *ovale*, FIGS. 20, 21, the narrowest; but there is a regular graduation from one extreme to another. The var. *kamtschaticum* has the longest petiole with the blade prominently decurrent on it; the plants of Loher, FIG. 3, and Cavasius, FIG. 4, show the blades slightly decurrent on the petioles, thus in a measure paralleling the western form. The pedicels vary from 2–6 mm. in length in all the forms; the petioles of the upper leaf measure 1–6 mm., and of the lower leaf, 2–16 mm., in all the forms except the western, which has much longer petioles. There is in Michigan a plant with broadly ovate or oval leaves, FIGS. 20 (stem-leaf), 21 (root-leaf); Pursh traversed the region of “the Lesser and Great Lakes” and I have no doubt that this form is the basis of his *Smilacina canadensis* var. *ovalis*; the base of the leaf is cordate or rather sagittate but the sinus is closed or nearly so, which renders it inconspicuous. There is a form which has three leaves to the stem and in Europe forms are found with but one leaf. The differences in length of petioles, pedicels, and the size of the leaf-sinus cannot be correlated with other characters with a sufficient degree of accuracy to warrant separating the different forms as species; such differences as exist are of degree and not of kind and therefore are not of specific value. The species and its forms may be listed as follows:

UNIFOLIUM BIFOLIUM (L.) Greene

Maianthemum canadense var. *interius* Fernald, *Rhodora* **16**: 211. 1914.

MICHIGAN: Owosso, May 21, 1889, *G. H. Hicks*; Stoney Creek, May 25, 1913, *Farwell* 3412. Illinois westward to the Black Hills and northward into Canada; also in Europe.

Unifolium bifolium monophyllum forma nov.

Differs from the species only in having but one leaf on the stem. SWEDEN: Moheda, *C. G. H. Cavassius*, in the herbarium of Parke, Davis & Company.

Unifolium bifolium canadense (Desf.) comb. nov.

Maianthemum canadense Desf. Ann. Mus. Paris **9**: 54. 1807.

Convallaria bifolia var. *canadensis* Poir. Enc. **4**: 371. 1816.

MICHIGAN: Detroit, May 9, 1895, *Farwell* 379a; Algonac, September 13, 1914, *Farwell* 3898. From Michigan eastward, ranging north to Newfoundland and south to the Carolinas.

Unifolium bifolium trifolium (Pursh) comb. nov.

Smilacina canadensis γ *trifolia* Pursh, Fl. Am. Sept. 233. 1814.

The stem has three leaves, otherwise like the variety *canadense*.

MICHIGAN: Detroit, May 9, 1895, *Farwell* 379b.

Unifolium bifolium ovale (Pursh) comb. nov.

Smilacina canadensis β *ovalis* Pursh, Fl. Am. Sept. 233. 1814.

I here adopt Pursh's varietal name for the form in the Lake Superior district, with broadly ovate or oval leaves.

MICHIGAN: Keweenaw Peninsula, June, 1886, *Farwell* 379; October, 1914, *Farwell*.

UNIFOLIUM BIFOLIUM KAMTSCHATICUM (Gmel.) Piper

California to Idaho and Alaska; also Siberia.

NOTES ON VAGNERA

VAGNERA STELLATA (L.) Morong

The common woodland form, 3-4.5 dm. in height, bearing seven to twelve leaves with a short, harsh pubescence on the veins on the lower surface, becoming, with age, glabrate or smooth, at least to the touch.

MICHIGAN: Ypsilanti, May 29, 1891, *Farwell 1121*; Parkedale Farm, May 19, 1912, *Farwell 2567*; Rochester, June 28, 1914, *Farwell 3699*.

This I take to be the typical form of the species. There is a wide range in the size of the plant and leaves, in the pubescence, and in the habitat of this species; the rhizome seems to vary in size correspondingly; the fruit, while young, is green; but as it approaches maturity it becomes purple on the angles; then intermediate lines of a paler color appear; later it is finely lined or spotted and ultimately becomes a ruby red as in *V. racemosa* and the other species of the genus. Fruit, however, in this species is a rarity; most of the flowers are sterile and drop from their pedicels at an early stage as though the plant were of hybrid origin; if such is the case the parents probably are *V. racemosa* and *V. trifolia*.

***Vagnera stellata mollis* var. nov.**

Differs from the typical form of the species in having the leaves densely and permanently velvety pubescent all over the lower surface; in the more numerous leaves, six to fourteen, 1-5 cm. wide and 3.5-20 cm. long; plant often larger, attaining a height of nearly 1 m., but sometimes smaller and not exceeding 18 cm.

MICHIGAN: Parkedale Farm, May 30, June 11, and July 4, 1914, *Farwell 3651, 3669½, 3720½*; growing in muck lands, on barren hilltops, and in *Sphagnum*, in the order named. SOUTH DAKOTA: Black Hills, *W. S. Rusby*.

The habitat of the variety is as variable as that of the typical form. The plants growing in *Sphagnum* are the smallest but seem to perfect fruit more readily than those in other situations; those growing in rich muck in elder thickets are the largest and do not perfect fruit at all; the plant does not disdain the exposed tops and sides of more or less barren hills but fruit is seldom seen in such localities. With all its variableness, however, the soft velvety pubescence of the plant remains constant.

VAGNERA TRIFOLIA (L.) Morong

This species and *Unifolium bifolium* are locally known as wild lily-of-the-valley. In the Lake Superior region of Michigan both are quite common. Besides the ordinary three-leaved form of *V. trifolia* there are two others that are frequently met with; one has two leaves to the stem, and the other, one leaf. These may be recorded as follows:

Vagnera trifolia bifolia forma nov.

A form with two leaves on the stem.

MICHIGAN: Keweenaw Peninsula, June 16, 1886, *Farwell* 378a.

Vagnera trifolia unifolia forma nov.

A form with only one leaf on the stem.

MICHIGAN: Keweenaw Peninsula, June 16, 1886, *Farwell* 378b.

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Explanation of plate 20

FIGS. 1-11. UNIFOLIUM BIFOLIUM (L.) Greene

1. Pressburg, Hungary, *Richter*. 2. Woods near Munich, Germany, May, 1891, *C. J. Mayer*. 3. Woods near Munich, Germany, May, 1887, *Loher*. 4. Moheda, Sweden, *C. G. H. Cavassius*. 5. Same locality and collector (forma *monophyllum*). 6. Lyngby, Denmark, June, 1865, *J. Lange*. 7, 8. Black Hills, South Dakota, *W. S. Rusby*. 9, 10. Owosso, Michigan, May 21, 1889, *G. H. Hicks*. 11. Stoney Creek, Michigan, *Farwell* 3412.

FIGS. 12-19. UNIFOLIUM BIFOLIUM CANADENSE (Desf.) Farwell

12-14. Westfield, Massachusetts, May 29, 1873, *H. H. Rusby*. 15. East Greenwich, New York, 1867, *A. Fitch*. 16, 19. Algonac, Michigan, September 13, 1914, *Farwell* 3898. 17, 18. Detroit, Michigan, May 9, 1893, *Farwell* 379a.

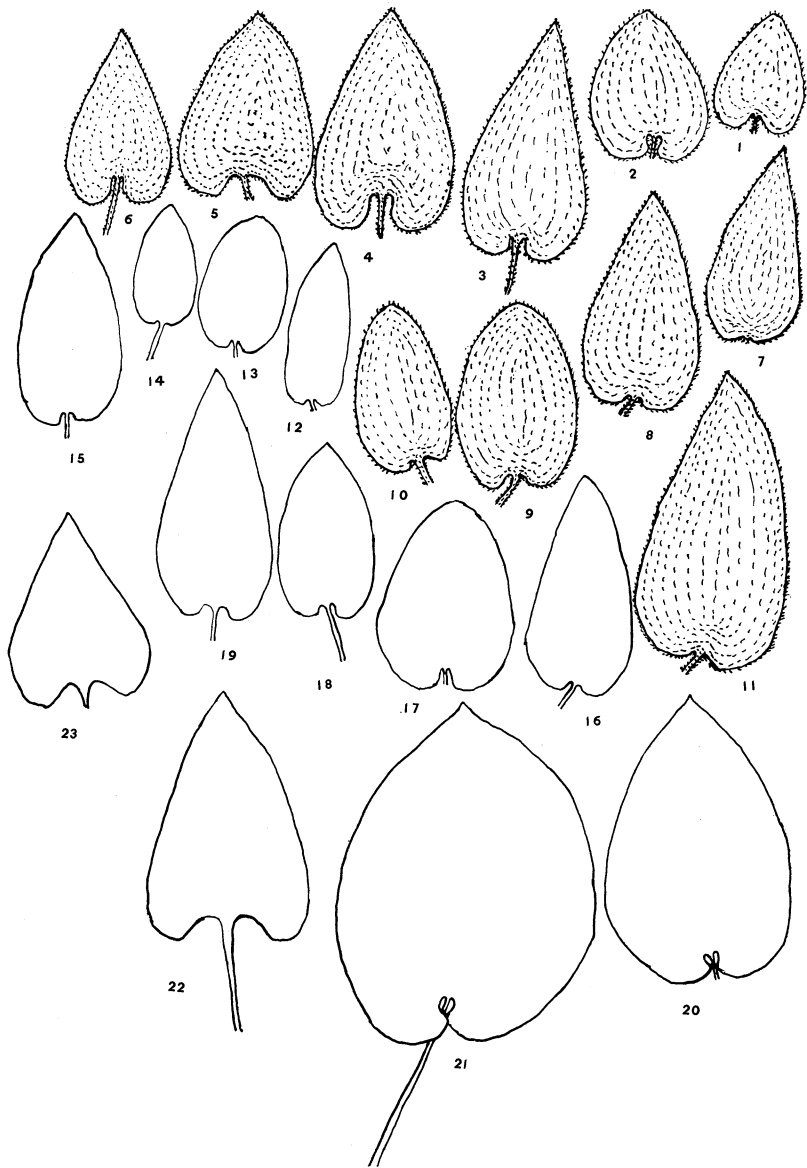
FIGS. 20, 21. UNIFOLIUM BIFOLIUM OVALE (Pursh) Farwell

20. Lower leaf; Keweenaw Peninsula, Michigan, June 16, 1886, *Farwell* 379. 21. Root leaf; same locality and collector, October, 1914.

FIGS. 22, 23. UNIFOLIUM BIFOLIUM KAMTSCHATICUM (Gmel.) Piper

22. Lower leaf; Cascades of the Columbia River, Washington, June 3, 1882, *W. N. Suksdorf*. 23. Upper leaf; same locality, collector, and date.

FIGS. 1-8, 12-15, 22, and 23 were drawn from specimens in the herbarium of Parke, Davis & Company; the remaining figures, from specimens in the herbarium of the writer. All are reduced one half.



UNIFOLIUM BIFOLIUM (L.) GREENE